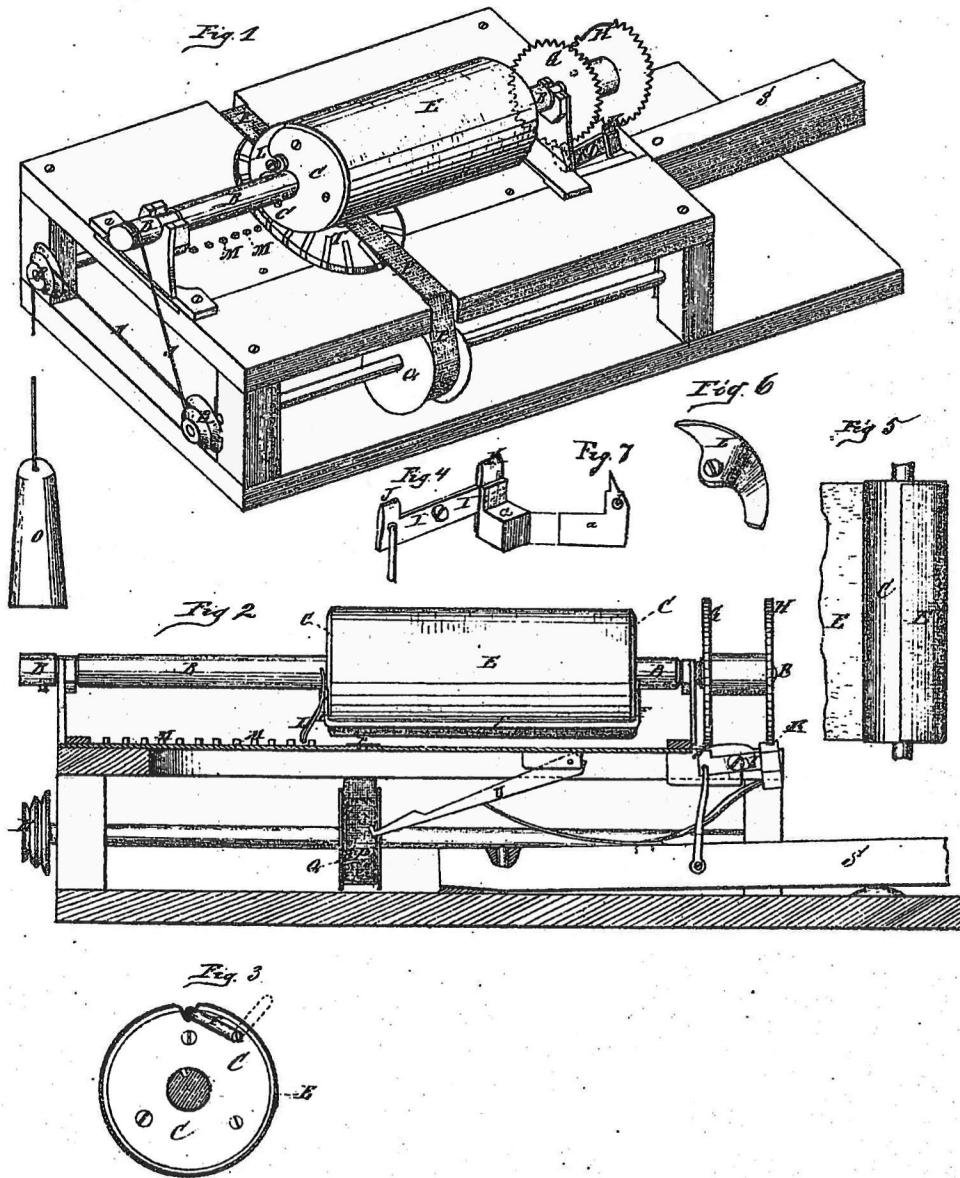


C. Latham Sholes.

Type Writer.

No. 118,491.

Patented Aug. 29, 1871.



Witnesses:
Henry J. Smith
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UNITED STATES PATENT OFFICE.

O. LATHAM SHOLES, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN MECHANICAL TYPOGRAPHERS.

Specification forming part of Letters Patent No. 118,491, dated August 29, 1871.

To all whom it may concern:

Be it known that I, O. LATHAM SHOLES, of the city and county of Milwaukee and State of Wisconsin, have invented an Improved Type-Writer.

The nature of the invention is manifold, as follows: First, a combined revolving cylindrical platen and paper-carriage. Second, a bail, combined with a revolving cylindrical-platen paper-carriage in a groove lengthwise in the periphery of the cylinder, to hold the paper firmly in its place. Third, two vibratory ratchets, combined with two ratchet-wheels on the axle of a revolving cylindrical-platen paper-carriage, to give a letter-space movement to the paper. Fourth, a vibratory ratchet, vibrating in a direction across the axle of a revolving cylindrical-platen paper-carriage, combined with a ratchet-wheel on the said revolving axle, to give exactitude to the letter-space movement of the paper. Fifth, a screw-cam, attached to a revolving-platen paper-carriage, combined with a series of pins or cog-teeth, to give a line-space movement to the paper. Sixth, a wide notch or space between the teeth of a ratchet-wheel on the axle of a revolving-platen paper-carriage, combined with a screw cam attached to the said platen paper-carriage and with a series of pins or cog-teeth, to give exactitude to and fix the point of the line space-movement of the paper. Seventh, two pulleys, on the axles of two ribbon-spools, combined with a cord and weight, to move the inking-ribbon in either of two opposite directions.

The accompanying drawing, with the following particular description thereof, will fully illustrate the invention.

The same letters of reference refer to the same parts in the description and in all the figures of the drawing.

The figures of the drawing represent parts, as follows: Figure 1 represents a perspective view of the invention. Fig. 2 represents a sectional view of the invention. Fig. 3 represents a view of the end of a bail and cylindrical platen. Fig. 4 represents a view of a vibratory double-ratchet, detached. Fig. 5 represents a view of an elastic blanket for a cylindrical platen. Fig. 6 represents a view of a screw-cam, detached. Fig. 7 represents a front view of a twofold vibratory ratchet.

The drawing shows only one type and one key,

but the invention uses a slotted disk and a series of types pivoted therein, and a series of keys adapted thereto, as invented by Sholes, Glidden, and Soule, and patented June and July, 1868, and fully shown and described in those patents.

B represents a main axle in a line at a right angle to the lines to be written, and directly over the points where the types strike. C represents a cylinder on the main axle B, attached so as to revolve with the axle and to slide freely over it lengthwise. E represents a blanket, of caoutchouc or other elastic material, to cover the cylinder C. F represents a bail, pivoted to each end of the cylinder C so as to swing into and catch and hold in a groove lengthwise in the periphery of the cylinder. G represents a ratchet-wheel on the main axle B, in front of the cylinder C. H represents another ratchet-wheel on the main axle B, in front of the first ratchet-wheel G, which has one wide notch or space between the teeth of its circumference directly opposite the groove on the periphery of the cylinder C and in the same radial plane. I represents a ratchet-bar, pivoted in the middle, directly under the ratchet-wheels G H, parallel with the main axle B, and which, at the end next the cylinder C, is also pivoted to a vertical rod, and which vertical rod, at the under end, is fastened to a bar lying across the top of the keys, between the fulcrum and the types. J represents a ratchet on the ratchet-bar I, directly under the first ratchet-wheel G, to work in the notches of the wheel. K represents another ratchet, directly under the second ratchet-wheel H, attached by a pivot, *b*, to the ratchet-bar I, so as to vibrate at a right angle to the vibration of the ratchet-bar, and which has a weight-arm, *a*, projecting out sidewise, so that when drawn out from a notch of the ratchet-wheel it may roll sidewise the space of a ratchet-tooth. L represents a screw-cam or segment of a screw, attached to an end of the cylinder C in line parallel with the groove on the periphery of the cylinder and the wide notch in the ratchet-wheel H, and in the same radial plane. M represents a series of pins or cog-teeth directly under the main axle B and in line parallel therewith, so that at every revolution of the cylinder C the screw-cam L will engage with the teeth and pass through a notch or space between them. N represents a cord or chain fastened to and wound around the rear end of the main axle B. O rep-

resents a weight attached to the other end of the cord N. P represents an inking-ribbon, under the cylinder C and over the point where the types strike. Q represents two spools on two minor axles, one on each side, and below and parallel with the main axle B, and on which is wound the ribbon P. R represents a pulley on the axle of each spool Q, and adjacent to the cord N. S represents a series of keys, pivoted on a fulcrum below the ratchets J K, to reach under and work the types. T represents a slotted disk, fastened above the rear ends of the keys and directly under the main axle B. U represents a series of keys, pivoted in the slots of the disk T so as to strike at a point in the center thereof, directly under the main axle B.

The paper to be written on is wrapped around the cylinder C, and the edges of the paper are lapped and pressed into the groove on the periphery of the cylinder and held firmly therein by the bail F, and the paper and cylinder revolve and slide together, and the cylinder becomes at once both a platen and paper-carriage. Instead of being covered with an elastic blanket, E, as in Figs. 1, 2, 3, and 5, the cylinder C itself may be elastic, and the combined cylinder C E, as in Figs. 1, 2, and 3, be of homogeneous elastic substance.

The benefit of an elastic platen is that it allows the types to be of material as soft as type-metal, and prevents their cutting through the paper, when striking directly against it; and the benefit of a revolving platen is that the types strike it only once in a place, and allow its elasticity fully to prevent or recuperate any abrasion of its surface; and the benefit of a cylindrical platen is that the paper may be wrapped around it, and make the cylinder a paper-carriage as well as platen.

The length and diameter of a cylindrical-platen paper-carriage are determined by the size of the paper to be used. The cord and weight N O continually tend to turn the main axle B, cylinder C, and ratchet-wheels G H, and are only prevented from turning them by one or the other of the ratchets J K being thrust into a notch in one or the other of the ratchet-wheels. In writing, the front ends of the keys S are pressed down, one after another, and the cross-bar over the keys, behind the fulcrum, is lifted up every time a key is pressed down; and every time the cross-bar is lifted up it thrusts the onefold vibratory ratchet J into a notch in the first ratchet-wheel G, to hold the paper from turning while a letter is written. At the same time the twofold vibratory ratchet K is drawn out from a notch in the second ratchet-wheel H, and as soon as it is clear, the weight-arm a falls and rolls the ratchet open, sidewise, the space of a tooth, so that it cannot go back into the same notch it came out of, but, when again lifted up, will catch and must go into the notch next forward thereof. And when the key, after a letter is written, rises again to its place of rest to let the type used fall back and give place to another, the cross-bar falls and draws the onefold vibratory ratchet out from a notch in the first ratchet-wheel, and thrusts the

twofold vibratory ratchet again into a notch in the second ratchet-wheel; but the ratchet, being pivoted to the ratchet-bar I and going into a notch next forward of the one it was in before, permits the cord and weight N O to turn the cylinder and ratchet-wheels the space of a tooth, and to lift the weight-arm up and to roll the ratchet sidewise back again to the place of rest. In this way, the space of a tooth of the ratchet-wheels being the space of a letter, the paper is held firmly while a key is struck and a letter is written; and while the key rises and the types fall again to their places the paper is moved the space of a letter, and all are ready for another action. And this letter-space revolving movement will continue regularly, as the writing is done, from one edge of the wide notch of space, between the teeth of the second ratchet-wheel H, around to the other edge of that same wide notch or space. When the wide notch or space between the teeth of the second ratchet-wheel H, in the course of the revolution of the wheel, reaches the twofold vibratory ratchet K the wheel will turn at once, instead of a letter-space, the whole distance of such wide notch or space. And the two-fold vibratory ratchet and the series of pins or cog-teeth M being in a line directly under the main axle B and the wide notch or space in the second ratchet-wheel, and the bail F and the screw-cam L being in the same radial plane and in lines parallel with the main axle, while the wide notch or space between the teeth of the ratchet-wheel is revolving past the ratchet, the bail and lapped edges of the paper are revolving past the point where the types strike, and the screw-cam passes through a notch between two of the pins or cog-teeth and draws the platen paper-carriage C lengthwise over the main axle B the distance of the space from one line of writing to another. In this way, after the ending of one line of writing, and before the beginning of another, the paper is moved from line to line in a direction at a right angle to the line of the letter-space movement. And this line-space movement will continue regularly, as the writing is done, at every revolution of the platen paper-carriage. In these ways the paper is moved and the writing done from side to side and from line to line. The cord or chain N from the main axle B, put under one of the pulleys R and over the other, will run the inking-ribbon P in one direction, and, put over the one pulley and under the other, will run the ribbon in the opposite direction. The necessity of constantly moving the ribbon a little at a time as the letters are written is to impart a uniform quantity of ink to all parts of the writing. And in this way the inking-ribbon can be moved from one spool to the other over the types and under the paper, forth and back, without changing anything but the cord. The side of the invention where the operator sits to work it is the front, and the opposite side is the rear.

I claim the following features:

1. The combination of a cylindrical platen, C, with a slotted type-disk, T, as described.
2. The combination of a cylindrical platen, C, with an inking-ribbon, P, as described.

3. The combination of a sliding cylindrical platen, C, with a revolving axle, B, as described.
4. The combination of a cylindrical platen, C, with a bail, F, as described.
5. The combination of a cylindrical platen, C, with a wide-notched ratchet-wheel, H, as described.
6. The combination of a cylindrical platen, C, with a screw-cam, L, and with a series of pins or cog-teeth, M, as described.
7. The combination of a cylindrical platen, C, with two ratchet-wheels, G H, on the same axle B, as described.
8. The combination of a twofold vibratory ratchet, K, pivoted to the ratchet-bar I, with a onefold vibratory ratchet, J, as described.
9. The combination of a twofold vibratory ratchet, K, with a wide-notched ratchet-wheel, H, as described.
10. The combination of two vibratory ratchets, J K, with two ratchet-wheels, G H, as described.
11. The combination of two pulleys, R, on the axles of two ribbon-spools, Q, with a cord or chain, N, attached to a ratchet-wheel axle, B, as described.

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